# REVISION RECORD
# FOR THE STATE OF CALIFORNIA
# ERRATA
# September 11, 2006
# 2004 Title 24, Part 3, California Electrical Code

**PLEASE NOTE: The date of this supplement is for identification purposes only. See the History Note Appendix for the adoption and effective dates of the provisions.**

It is suggested that the section number, as well as the page number be checked when inserting this material and removing the superceded material. In case of doubt, rely on the section numbers rather than the page numbers because the section numbers must run consecutively.

It is further suggested that the superceded material be retained with this revision record sheet so that the prior wording of any section can be easily ascertained. Please keep the removed pages with this revision page for future reference.

**NOTE**

**Due to the fact that the application date for a building permit establishes the California Building Standards Code provisions that are effective at the local level, which apply to the plans, specifications, and construction for that permit, it is strongly recommended that the removed pages be retained for historical reference.**

**Part 3**

| Remove Existing Pages | Insert Blue-Colored Pages |
|---|---|
| **70-**xlix | **70-**xlix |
| **70-**13 and **70-**14 | **70-**13 and **70-**14 |
| **70-**91 and **70-**92 | **70-**91 and **70-**92 |
| **70-**233 through **70-**238 | **70-**233 through **70-**238 |
| **70-**397 and **70-**398 | **70-**397 and **70-**398 |
| **70-**711 | **70-**711 |

## ANNEXES A, B, C, D, E AND F

| ENFORCING AUTHORITY | Local Building Official | | | Local Fire Official | Local Health Official | State Agency | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADOPTING AGENCY | HCD | | DSA AC | SFM | DHS | DSA SS | OSHPD | | | | * DOSH | BSC |
| | 1 | 2 | | | | | 1 | 2 | 3 | 4 | | |
| Adopt entire NEC article without amendments | | | | | | | X | X | X | X | | |
| Adopt entire NEC article as amended (amendments listed below) | | | | | | | | | | | | |
| Adopt only those sections which are listed below | | | | | | | | | | | | |

*DOSH has not adopted the 1996, 1999, or the 2002 edition of the National Electrical Code. The 1995 edition of the California Electrical Code remains effective.

The ♦ designation indicates that the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures subject to HCD 1 and/or HCD 2.

**(2)** *Any sanitary facilities which are made available for the public, clients, or employees in such accommodations or facilities.*

**(3)** *Any curb or sidewalk intended for public use that is constructed in this State with private funds.*

**(4)** *All existing privately funded public accommodations when alterations, structural repairs, or additions are made to such public accommodations as set forth in the California Code of Regulations, Title 24, Part 2, Chapter 11B.*

***C. Application.*** *Public housing and private housing available for public use.*

***Note:*** *See Government Code Sections 4450 and 12955.1(d)*

**D. Enforcing Agency:**

**(1)** *The Director of General Services where State funds are utilized for any project or where funds of counties, municipalities, or other political subdivisions are utilized for the construction of elementary, secondary, or community college projects.*

**(2)** *The governing bodies thereof where funds of counties, municipalities, or other political subdivisions are utilized except as otherwise provided above.*

**(3)** *The building department of every city, county, or city and county, within the territorial area of its city, county, or city and county, where private funds are utilized. "Building department" means the department, bureau, or officer charged with the enforcement of laws or ordinances regulating the erection or construction, or both the erection and construction, of buildings.*

**E. Special Conditions for Persons With Disabilities Requiring Appeals Action Ratification.** *Whenever reference is made in these regulations to this section, the findings and determinations required to be rendered by the local enforcing agency shall be subject to ratification through an appeals process.*

**F. Authority Cited—***Government Code Section 4450 and Health and Safety Code 18949.1.*

**G. Reference—** *Government Code Sections 4450 through 4460, 12955.1 and Health and Safety Code Sections 18949.1, 19952 through 19959.*

**6. DSA-SS—Division of the State Architect, Structural Safety.**

**A. Application—***Public elementary and secondary schools and community-college buildings.*
**Authority Cited—***Education Code 17310.*
**Reference—***Education Code Sections 17280 through 17316 and 81130 through 81149.*
**Enforcing Agency—***Division of the State Architect, Structural Safety.*

**B. Application—***State-owned or -leased essential service buildings.*
**Authority Cited—***Health and Safety Code Section 16022.*
**Reference—***Health and Safety Code Sections 16000 through 16023.*
**Enforcing Agency—***Division of the State Architect, Structural Safety.*

**7. OSHPD—Office of Statewide Health Planning and Development.**

**A. OSHPD 1**

**Application—***General acute-care hospitals and acute psychiatric hospitals excluding distinct part units or distinctpart freestanding buildings providing skilled nursing or intermediate-care services. For Structural Regulations: Skilled nursing facilities and/or intermediate care facilities except those skilled nursing facilities and intermediate care facilities of single-story, Type V, wood or light steel-frame construction.*
**Enforcing Agency—***The office shall enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.*
**Authority Cited—***H&SC §446.2, 446.3, 1275, and 129850.*
**Reference—***H&SC §446.2, 446.3, 1275, and 129675 through 129990.*

**B. OSHPD 2**

**Application**—*Skilled nursing facilities and intermediate care facilities including distinct part skilled nursing and intermediate-care services on a general acute-care or acute psychiatric hospital license, provided either in a separate unit or a freestanding building. For structural regulations: Single-story, Type V skilled nursing and/or intermediate-care facilities utilizing wood or light steel-frame construction.*
**Enforcing Agency—***OSHPD. The office shall also enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility type.*
**Authority Cited—***H&SC §446.2, 446.3, 1275, and 129850.*
**Reference—***H&SC §446.2, 446.3, 1275, and 129680.*

**C. OSHPD 3**

**Application—***Licensed clinics.*
**Enforcing Agency—***Local building department.*
**Authority Cited—***H&SC §446.2, 446.3, and 1226.*
**Reference—***H&SC §446.2, 446.3, and 1226, GC §54350, H&SC §129885, and State Constitution Article 11 §7.*

**D. OSHPD 4**

**Application—***Correctional treatment centers.*
**Enforcing Agency—***OSHPD. The office shall also enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above-stated facility types.*
**Authority Cited—***H&SC Sections 446.2, 446.3, and 1226.*
**Reference—***H&SC Sections 446.2, 446.3, 1275, and 129675 through 129990.*

**8. SFM—Office of the State Fire Marshal.**

***A. Application -*** *Any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for the aged, children's nursery, children's home, school or any similar occupancy of any capacity.*

*Any theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building, or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.*

***Authority Cited****-Health and Safety Code Section 13143.*

***Reference****-Health and Safety Code Section 13143.*

***B. Application.***

*Small Family Day-care Homes*

***Authority Cited****-Health and Safety Code Sections 1597.45, 1597.54, 13143 and 17921.*

***Reference****-Health and Safety Code Section 13143.*

***C. Application.***

*Large Family Day-care Homes*

***Authority Cited****-Health and Safety Code Sections 1597.45, 1597.54 and 17921.*

***Reference****-Health and Safety Code Section 13143.*

***D. Application.***

*Residential Facilities and Residential Facilities for the Elderly*

***Authority Cited****-Health and Safety Code Section 13113 and 13131.5*

***Reference****-Health and Safety Code Section 13143.*

***E. Application.***

*Any state institution or other state-owned or state-occupied building.*

***Authority Cited****-Health and Safety Code Section 13108.*

***Reference****-Health and Safety Code Section 13143.*

***F. Application.***

*High-rise Structures*

***Authority Cited****-Health and Safety Code Section 13211.*

***Reference****-Health and Safety Code Section 13143.*

***G. Application.***

*Motion Picture Production Studios*

***Authority Cited****-Health and Safety Code Section 13143.1*

***Reference****-Health and Safety Code Section 13143.*

***H. Application.***

*Organized Camps*

***Authority Cited****-Health and Safety Code Section 18897.3.*

***Reference****-Health and Safety Code Section 13143.*

***I. Application.***

*All hotels, motels, lodging houses, apartment houses and dwellings, including congregate residences and buildings and structures accessory thereto.*

*Multiple-story structures existing on January 1, 1975, let for human habitation, including and limited to, hotels, motels, apartment houses, less than 75 feet (22 860 mm) above the lowest floor level having building access, wherein rooms used for sleeping are let above the ground floor.*

***Authority Cited****-Health and Safety Code Section 13143.2 and 17921.*

***Reference****-Health and Safety Code Section 13143.*

***J. Application.***

*Certified family-care homes, out-of-home placement facilities, halfway house houses, drug and/or alcohol rehabilitation facilities and any building or structure used or intended for use as a home or institution for the housing of any person of any age when such person is referred to or placed within such home or institution for protective social care and supervision services by any governmental agency.*

***Authority Cited****-Health and Safety Code Section 13143 and 13143.6*

***Reference****-Health and Safety Code Section 13143.6.*

***K. Application.***

*Tents, awnings or other fabric enclosures used in connection with any occupancy.*

***Authority Cited****-Health and Safety Code Section 13116.*

***Reference****-Health and Safety Code Section 13116.*

***L. Application.***

*Fire alarm devices, equipment and systems, in connection with any occupancy.*

***Authority Cited****-Health and Safety Code Section 13114 and 13143.*

***Reference****-Health and Safety Code Section 13114.*

***M. Application.***

*Hazardous materials.*

***Authority Cited****-Health and Safety Code Section 13143.9.*

***Reference****-Health and Safety Code Section 13143.9.*

***N. Application.***

*Flammable an combustible liquids.*

***Authority Cited****-Health and Safety Code Section 13143.6.*

***Reference****-Health and Safety Code Section 13143.6.*

**89.8 Adopting Agency.** *An "Adopting agency" is a State agency, excluding an agency in the judicial or legislative departments of the State Government, which is responsible for the administration of a program and which as promulgated, adopted and submitted to the Commission for its approval proposed building standards for such programs. "Adopting agency" may include boards, commissions, committees, departments, divisions, officers, offices, and other subdivisions of State Government.*

equipment or first system disconnecting means.

**(G) Equipment Bonding Jumper Size.** The equipment bonding jumper shall be sized in accordance with (1) or (2).

(1) Where the grounding electrode conductor connection is made at the grounding impedance, the equipment bonding jumper shall be sized in accordance with 250.66, based on the size of the service entrance conductors for a service or the derived phase conductors for a separately derived system.

(2) Where the grounding electrode conductor is connected at the first system disconnecting means or overcurrent device, the equipment bonding jumper shall be sized the same as the neutral conductor in 250.36(B).

### III. Grounding Electrode System and Grounding Electrode Conductor

**250.50 Grounding Electrode System.** If available on the premises at each building or structure served, each item in 250.52(A)(1) through (A)(6) shall be bonded together to form the grounding electrode system. Where none of these electrodes are available, one or more of the electrodes specified in 250.52(A)(4) through (A)(7) shall be installed and used.

**250.52 Grounding Electrodes.**

**(A) Electrodes Permitted for Grounding.**

**(1) Metal Underground Water Pipe.** A metal underground water pipe in direct contact with the earth for 3.0 m (10 ft) or more (including any metal well casing effectively bonded to the pipe) and electrically continuous (or made electrically continuous by bonding around insulating joints or insulating pipe) to the points of connection of the grounding electrode conductor and the bonding conductors. Interior metal water piping located more than 1.52 m (5 ft) from the point of entrance to the building shall not be used as a part of the grounding electrode system or as a conductor to interconnect electrodes that are part of the grounding electrode system.

*Exception: In industrial and commercial buildings or structures where conditions of maintenance and supervision ensure that only qualified persons service the installation, interior metal water piping located more than 1.52 m (5 ft) from the point of entrance to the building shall be permitted as a part of the grounding electrode system or as a conductor to interconnect electrodes that are part of the grounding electrode system, provided that the entire length, other than short sections passing perpendicular through walls, floors, or ceilings, of the interior metal water pipe that is being used for the conductor is exposed.*

**(2) Metal Frame of the Building or Structure.** The metal frame of the building or structure, where effectively grounded.

**(3) Concrete-Encased Electrode.** An electrode encased by at least 50 mm (2 in.) of concrete, located within and near the bottom of a concrete foundation or footing that is in direct contact with the earth, consisting of at least 6.0 m (20 ft) of one or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods of not less than 13 mm (½ in.) in diameter, or consisting of at least 6.0 m (20 ft) of bare copper conductor not smaller than 4 AWG. Reinforcing bars shall be permitted to be bonded together by the usual steel tie wires or other effective means.

**(4) Ground Ring.** A ground ring encircling the building or structure, in direct contact with the earth, consisting of at least 6.0 m (20 ft) of bare copper conductor not smaller than 2 AWG.

**(5) Rod and Pipe Electrodes.** Rod and pipe electrodes shall not be less than 2.5 m (8 ft) in length and shall consist of the following materials.

(a) Electrodes of pipe or conduit shall not be smaller than metric designator 21 (trade size ¾) and, where of iron or steel, shall have the outer surface galvanized or otherwise metal-coated for corrosion protection.

(b) Electrodes of rods of iron or steel shall be at least 15.87 mm (⅝ in.) in diameter. Stainless steel rods less than 16 mm (⅝ in.) in diameter, nonferrous rods, or their equivalent shall be listed and shall not be less than 13 mm (½ in.) in diameter.

**(6) Plate Electrodes.** Each plate electrode shall expose not less than 0.186 $m^2$ (2 $ft^2$) of surface to exterior soil. Electrodes of iron or steel plates shall be at least 6.4 mm (¼ in.) in thickness. Electrodes of nonferrous metal shall be at least 1.5 mm (0.06 in.) in thickness.

**(7) Other Local Metal Underground Systems or Structures.** Other local metal underground systems or structures such as piping systems and underground tanks.

**(B) Electrodes Not Permitted for Grounding.** The following shall not be used as grounding electrodes:

(1) Metal underground gas piping system

(2) Aluminum electrodes

**250.53 Grounding Electrode System Installation.**

FPN: See 547.9 and 547.10 for special grounding and bonding requirements for agricultural buildings.

**(A) Rod, Pipe, and Plate Electrodes.** Where practicable, rod, pipe, and plate electrodes shall be embedded below permanent moisture level. Rod, pipe, and plate electrodes shall be free from nonconductive coatings such as paint or

enamel.

**(B) Electrode Spacing.** Where more than one of the electrodes of the type specified in 250.52(A)(5) or (A)(6) are used, each electrode of one grounding system (including that used for air terminals) shall not be less than 1.83 m (6 ft) from any other electrode of another grounding system. Two or more grounding electrodes that are effectively bonded together shall be considered a single grounding electrode system.

**(C) Bonding Jumper.** The bonding jumper(s) used to connect the grounding electrodes together to form the grounding electrode system shall be installed in accordance with 250.64(A), (B), and (E), shall be sized in accordance with 250.66, and shall be connected in the manner specified in 250.70.

**(D) Metal Underground Water Pipe.** Where used as a grounding electrode, metal underground water pipe shall meet the requirements of 250.53(D)(1) and (D)(2).

**(1) Continuity.** Continuity of the grounding path or the bonding connection to interior piping shall not rely on water meters or filtering devices and similar equipment.

**(2) Supplemental Electrode Required.** A metal underground water pipe shall be supplemented by an additional electrode of a type specified in 250.52(A)(2) through (A)(7). Where the supplemental electrode is a rod, pipe, or plate type, it shall comply with 250.56. The supplemental electrode shall be permitted to be bonded to the grounding electrode conductor, the grounded service-entrance conductor, the nonflexible grounded service raceway, or any grounded service enclosure.

*Exception: The supplemental electrode shall be permitted to be bonded to the interior metal water piping at any convenient point as covered in 250.52(A)(1), Exception.*

**(E) Supplemental Electrode Bonding Connection Size.** Where the supplemental electrode is a rod, pipe, or plate electrode, that portion of the bonding jumper that is the sole connection to the supplemental grounding electrode shall not be required to be larger than 6 AWG copper wire or 4 AWG aluminum wire.

**(F) Ground Ring.** The ground ring shall be buried at a depth below the earth's surface of not less than 750 mm (30 in.).

**(G) Rod and Pipe Electrodes.** The electrode shall be installed such that at least 2.44 m (8 ft) of length is in contact with the soil. It shall be driven to a depth of not less than 2.44 m (8 ft) except that, where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45 degrees from the vertical or, where rock bottom is encountered at an angle up to 45 degrees, the electrode shall be permitted to be buried in a trench that is at least 750 mm (30 in.) deep. The upper end of the electrode shall be flush with or below ground level unless the aboveground end and the grounding electrode conductor attachment are protected against physical damage as specified in 250.10.

**(H) Plate Electrode.** Plate electrodes shall be installed not less than 750 mm (30 in.) below the surface of the earth.

**250.54 Supplementary Grounding Electrodes.**

Supplementary grounding electrodes shall be permitted to be connected to the equipment grounding conductors specified in 250.118 and shall not be required to comply with the electrode bonding requirements of 250.50 or 250.53(C) or the resistance requirements of 250.56, but the earth shall not be used as the sole equipment grounding conductor.

**250.56 Resistance of Rod, Pipe, and Plate Electrodes.** A single electrode consisting of a rod, pipe, or plate that does not have a resistance to ground of 25 ohms or less shall be augmented by one additional electrode of any of the types specified by 250.52(A)(2) through (A)(7). Where multiple rod, pipe, or plate electrodes are installed to meet the requirements of this section, they shall not be less than 1.8 m (6 ft) apart.

FPN: The paralleling efficiency of rods longer than 2.5 m (8 ft) is improved by spacing greater than 1.8 m (6 ft).

**250.58 Common Grounding Electrode.** Where an ac system is connected to a grounding electrode in or at a building as specified in 250.24 and 250.32, the same electrode shall be used to ground conductor enclosures and equipment in or on that building. Where separate services supply a building and are required to be connected to a grounding electrode, the same grounding electrode shall be used.

Two or more grounding electrodes that are effectively bonded together shall be considered as a single grounding electrode system in this sense.

**250.60 Use of Air Terminals.** Air terminal conductors and driven pipes, rods, or plate electrodes used for grounding air terminals shall not be used in lieu of the grounding electrodes required by 250.50 for grounding wiring systems and equipment. This provision shall not prohibit the required bonding together of grounding electrodes of different systems.

FPN No. 1: See 250.106 for spacing from air terminals. See 800.40(D), 810.21(J), and 820.40(D) for bonding of electrodes.

FPN No. 2: Bonding together of all separate grounding electrodes will limit potential differences between them and between their associated wiring systems.

**(B) Used as a Raceway.** Enclosures shall not be used as junction boxes, auxiliary gutters, or raceways for conductors feeding through or tapping off to other switches or overcurrent devices, unless the enclosure complies with 312.8.

**404.4 Wet Locations.** A switch or circuit breaker in a wet location or outside of a building shall be enclosed in a weatherproof enclosure or cabinet that shall comply with 312.2(A). Switches shall not be installed within wet locations in tub or shower spaces unless installed as part of a listed tub or shower assembly.

**404.5 Time Switches, Flashers, and Similar Devices.** Time switches, flashers, and similar devices shall be of the enclosed type or shall be mounted in cabinets or boxes or equipment enclosures. Energized parts shall be barriered to prevent operator exposure when making manual adjustments or switching.

*Exception: Devices mounted so they are accessible only to qualified persons shall be permitted without barriers, provided they are located within an enclosure such that any energized parts within 152 mm (6.0 in.) of the manual adjustment or switch are covered by suitable barriers.*

**404.6 Position and Connection of Switches.**

**(A) Single-Throw Knife Switches.** Single-throw knife switches shall be placed so that gravity will not tend to close them. Single-throw knife switches, approved for use in the inverted position, shall be provided with a locking device that ensures that the blades remain in the open position when so set.

**(B) Double-Throw Knife Switches.** Double-throw knife switches shall be permitted to be mounted so that the throw is either vertical or horizontal. Where the throw is vertical, a locking device shall be provided to hold the blades in the open position when so set.

**(C) Connection of Switches.** Single-throw knife switches and switches with butt contacts shall be connected so that their blades are de-energized when the switch is in the open position. Bolted pressure contact switches shall have barriers that prevent inadvertent contact with energized blades. Single-throw knife switches, bolted pressure contact switches, molded case switches, switches with butt contacts, and circuit breakers used as switches shall be connected so that the terminals supplying the load are de-energized when the switch is in the open position.

*Exception: The blades and terminals supplying the load of a switch shall be permitted to be energized when the switch is in the open position where the switch is connected to circuits or equipment inherently capable of providing a backfeed source of power. For such installations, a permanent sign shall be installed on the switch enclosure or immediately adjacent to open switches with the following words or equivalent: WARNING — LOAD SIDE TERMINALS MAY BE ENERGIZED BY BACKFEED.*

**404.7 Indicating.** General-use and motor-circuit switches, circuit breakers, and molded case switches, where mounted in an enclosure as described in 404.3, shall clearly indicate whether they are in the open (off) or closed (on) position.

Where these switch or circuit breaker handles are operated vertically rather than rotationally or horizontally, the up position of the handle shall be the (on) position.

*Exception: Vertically operated double-throw switches shall be permitted to be in the closed (on) position with the handle in either the up or down position.*

**404.8 Accessibility and Grouping.**

C A C A **(A) Location.**

***(1)*** All switches and circuit breakers used as switches shall be located so that they may be operated from a readily accessible place. They shall be installed so that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, is not more than 2.0 m (6 ft 7 in.) above the floor or working platform.

*Exception No. 1: On busway installations, fused switches and circuit breakers shall be permitted to be located at the same level as the busway. Suitable means shall be provided to operate the handle of the device from the floor.*

*Exception No. 2: Switches and circuit breakers installed adjacent to motors, appliances, or other equipment that they supply shall be permitted to be located higher than specified in the foregoing and to be accessible by portable means.*

*Exception No. 3: Hookstick operable isolating switches shall be permitted at greater heights.*

C A C A *(2) [For OSHPD 1, 2, & 4] Switches shall not be installed within shower rooms or stalls or be accessible from within these areas. Switches shall not be installed within 5 feet (1.52 m) of the perimeter of bathtubs.*

**(B) Voltage Between Adjacent Devices.** A snap switch shall not be grouped or ganged in enclosures with other snap switches, receptacles, or similar devices, unless they are arranged so that the voltage between adjacent devices does not exceed 300 volts, or unless they are installed in enclosures equipped with permanently installed barriers between adjacent devices.

V V

**404.9 Provisions for General-Use Snap Switches.**

**(A) Faceplates.** Faceplates provided for snap switches mounted in boxes and other enclosures shall be installed so as to completely cover the opening and, where the switch is flush mounted, seat against the finished surface.

**(B) Grounding.** Snap switches, including dimmer and similar control switches, shall be effectively grounded and shall provide a means to ground metal faceplates, whether or not a metal faceplate is installed. Snap switches shall be considered effectively grounded if either of the following conditions is met.

(1) The switch is mounted with metal screws to a metal box or to a nonmetallic box with integral means for grounding devices.

(2) An equipment grounding conductor or equipment bonding jumper is connected to an equipment grounding termination of the snap switch.

*Exception to (B): Where no grounding means exists within the snap-switch enclosure or where the wiring method does not include or provide an equipment ground, a snap switch without a grounding connection shall be permitted for replacement purposes only. A snap switch wired under the provisions of this exception and located within reach of earth, grade conducting floors, or other conducting surfaces shall be provided with a faceplate of nonconducting, noncombustible material.*

**(C) Construction.** Metal faceplates shall be of ferrous metal not less than 0.76 mm (0.030 in.) in thickness or of nonferrous metal not less than 1.02 mm (0.040 in.) in thickness. Faceplates of insulating material shall be noncombustible and not less than 2.54 mm (0.010 in.) in thickness, but they shall be permitted to be less than 2.54 mm (0.010 in.) in thickness if formed or reinforced to provide adequate mechanical strength.

**404.10 Mounting of Snap Switches.**

**(A) Surface-Type.** Snap switches used with open wiring on insulators shall be mounted on insulating material that separates the conductors at least 13 mm (½ in.) from the surface wired over.

**(B) Box Mounted.** Flush-type snap switches mounted in boxes that are set back of the wall surface as permitted in 314.20 shall be installed so that the extension plaster ears are seated against the surface of the wall. Flush-type snap switches mounted in boxes that are flush with the wall surface or project from it shall be installed so that the mounting yoke or strap of the switch is seated against the box.

**404.11 Circuit Breakers as Switches.** A hand-operable circuit breaker equipped with a lever or handle, or a power-operated circuit breaker capable of being opened by hand in the event of a power failure, shall be permitted to serve as a switch if it has the required number of poles.

FPN: See the provisions contained in 240.81 and 240.83.

**404.12 Grounding of Enclosures.** Metal enclosures for switches or circuit breakers shall be grounded as specified in Article 250. Where nonmetallic enclosures are used with metal raceways or metal-armored cables, provision shall be made for grounding continuity.

Except as covered in 404.9(B), Exception, nonmetallic boxes for switches shall be installed with a wiring method that provides or includes an equipment ground.

**404.13 Knife Switches.**

**(A) Isolating Switches.** Knife switches rated at over 1200 amperes at 250 volts or less, and at over 600 amperes at 251 to 600 volts, shall be used only as isolating switches and shall not be opened under load.

**(B) To Interrupt Currents.** To interrupt currents over 1200 amperes at 250 volts, nominal, or less, or over 600 amperes at 251 to 600 volts, nominal, a circuit breaker or a

switch of special design listed for such purpose shall be used.

**(C) General-Use Switches.** Knife switches of ratings less than specified in 404.13(A) and (B) shall be considered general-use switches.

FPN: See definition of *General-Use Switch* in Article 100.

**(D) Motor-Circuit Switches.** Motor-circuit switches shall be permitted to be of the knife-switch type.

FPN: See definition of a *Motor-Circuit Switch* in Article 100.

**404.14 Rating and Use of Snap Switches.** Snap switches shall be used within their ratings and as indicated in 404.14(A) through (D).

FPN No. 1: For switches on signs and outline lighting, see 600.6.

FPN No. 2: For switches controlling motors, see 430.83, 430.109, and 430.110.

**(A) Alternating Current General-Use Snap Switch.** A form of general-use snap switch suitable only for use on ac circuits for controlling the following:

(1) Resistive and inductive loads, including electric-discharge lamps, not exceeding the ampere rating of the switch at the voltage involved

(2) Tungsten-filament lamp loads not exceeding the ampere rating of the switch at 120 volts

(3) Motor loads not exceeding 80 percent of the ampere rating of the switch at its rated voltage

**(B) Alternating-Current or Direct-Current General-Use Snap Switch.** A form of general-use snap switch suitable for use on either ac or dc circuits for controlling the following:

(1) Resistive loads not exceeding the ampere rating of the switch at the voltage applied.

(2) Inductive loads not exceeding 50 percent of the ampere rating of the switch at the applied voltage. Switches rated in horsepower are suitable for controlling motor loads within their rating at the voltage applied.

(3) Tungsten-filament lamp loads not exceeding the ampere rating of the switch at the applied voltage if T-rated.

**(C) CO/ALR Snap Switches.** Snap switches rated 20 amperes or less directly connected to aluminum conductors shall be listed and marked CO/ALR.

**(D) Alternating-Current Specific-Use Snap Switches Rated for 347 Volts.** Snap switches rated 347 volts ac shall be listed and shall be used only for controlling the following.

**(1) Noninductive Loads.** Noninductive loads other than tungsten-filament lamps not exceeding the ampere and voltage ratings of the switch.

**(2) Inductive Loads.** Inductive loads not exceeding the ampere and voltage ratings of the switch. Where particular load characteristics or limitations are specified as a condition of the listing, those restrictions shall be observed regardless of the ampere rating of the load.

The ampere rating of the switch shall not be less than 15 amperes at a voltage rating of 347 volts ac. Flush-type snap switches rated 347 volts ac shall not be readily interchangeable in box mounting with switches identified in 404.14(A) and (B).

**(E) Dimmer Switches.** General-use dimmer switches shall be used only to control permanently installed incandescent luminaires (lighting fixtures) unless listed for the control of other loads and installed accordingly.

## II. Construction Specifications

**404.15 Marking.**

**(A) Ratings.** Switches shall be marked with the current, voltage, and, if horsepower rated, the maximum rating for which they are designed.

**(B) Off Indication.** Where in the off position, a switching device with a marked OFF position shall completely disconnect all ungrounded conductors to the load it controls.

**404.16 600-Volt Knife Switches.** Auxiliary contacts of a renewable or quick-break type or the equivalent shall be provided on all knife switches rated 600 volts and designed for use in breaking current over 200 amperes.

**404.17 Fused Switches.** A fused switch shall not have fuses in parallel except as permitted in 240.8.

**404.18 Wire-Bending Space.** The wire-bending space required by 404.3 shall meet Table 312.6(B) spacings to the enclosure wall opposite the line and load terminals.

# ARTICLE 406

# Receptacles, Cord Connectors, and Attachment Plugs (Caps)

**406.1 Scope.** This article covers the rating, type, and installation of receptacles, cord connectors, and attachment plugs (cord caps).

**406.2 Receptacle Rating and Type.**

**(A) Receptacles.** Receptacles shall be listed for the purpose and marked with the manufacturer's name or identification and voltage and ampere ratings.

**(B) Rating.** Receptacles and cord connectors shall be rated not less than 15 amperes, 125 volts, or 15 amperes, 250 volts, and shall be of a type not suitable for use as lampholders.

FPN: See 210.21(B) for receptacle ratings where installed on branch circuits.

**(C) Receptacles for Aluminum Conductors.** Receptacles rated 20 amperes or less and designed for the direct connection of aluminum conductors shall be marked CO/ALR.

**(D) Isolated Ground Receptacles.** Receptacles incorporating an isolated grounding connection intended for the reduction of electrical noise (electromagnetic interference) as permitted in 250.146(D) shall be identified by an orange triangle located on the face of the receptacle.

**(1)** Receptacles so identified shall be used only with grounding conductors that are isolated in accordance with 250.146(D).

**(2)** Isolated ground receptacles installed in nonmetallic boxes shall be covered with a nonmetallic faceplate.

*Exception: Where an isolated ground receptacle is installed in a nonmetallic box, a metal faceplate shall be permitted if the box contains a feature or accessory that permits the effective grounding of the faceplate.*

**406.3 General Installation Requirements.** Receptacle outlets shall be located in branch circuits in accordance with Part III of Article 210. General installation requirements shall be in accordance with 406.3(A) through (F).

**(A) Grounding Type.** Receptacles installed on 15- and 20-ampere branch circuits shall be of the grounding type. Grounding-type receptacles shall be installed only on circuits of the voltage class and current for which they are rated, except as provided in Table 210.21(B)(2) and (B)(3).

*Exception: Nongrounding-type receptacles installed in accordance with 406.3(D).*

**(B) To Be Grounded.** Receptacles and cord connectors that have grounding contacts shall have those contacts effectively grounded.

*Exception No. 1: Receptacles mounted on portable and vehicle-mounted generators in accordance with 250.34.*

*Exception No. 2: Replacement receptacles as permitted by 406.3(D).*

**(C) Methods of Grounding.** The grounding contacts of receptacles and cord connectors shall be grounded by connection to the equipment grounding conductor of the circuit supplying the receptacle or cord connector.

FPN: For installation requirements for the reduction of electrical noise, see 250.146(D).

The branch-circuit wiring method shall include or provide an equipment-grounding conductor to which the grounding contacts of the receptacle or cord connector shall be connected.

FPN No. 1: 250.118 describes acceptable grounding means.

FPN No. 2: For extensions of existing branch circuits, see 250.130.

**(D) Replacements.** Replacement of receptacles shall comply with 406.3(D)(1), (2), and (3) as applicable.

**(1) Grounding-Type Receptacles.** Where a grounding means exists in the receptacle enclosure or a grounding conductor is installed in accordance with 250.130(C), grounding-type receptacles shall be used and shall be connected to the grounding conductor in accordance with 406.3(C) or 250.130(C).

**(2) Ground-Fault Circuit Interrupters.** Ground-fault circuit-interrupter protected receptacles shall be provided where replacements are made at receptacle outlets that are required to be so protected elsewhere in this *Code*.

**(3) Nongrounding-Type Receptacles.** Where grounding means does not exist in the receptacle enclosure, the installation shall comply with (a), (b), or (c).

(a) A nongrounding-type receptacle(s) shall be permitted to be replaced with another nongrounding-type receptacle(s).

(b) A nongrounding-type receptacle(s) shall be permitted to be replaced with a ground-fault circuit interrupter-type of receptacle(s). These receptacles shall be marked "No Equipment Ground." An equipment grounding conductor shall not be connected from the ground-fault circuit-interrupter-type receptacle to any outlet supplied from the ground-fault circuit-interrupter receptacle.

(c) A nongrounding-type receptacle(s) shall be permitted to be replaced with a grounding-type receptacle(s) where supplied through a ground-fault circuit interrupter. Grounding-type receptacles supplied through the ground-fault circuit interrupter shall be marked "GFCI Protected" and "No Equipment Ground." An equipment grounding conductor shall not be connected between the grounding-type receptacles.

**(E) Cord-and-Plug-Connected Equipment.** The installation of grounding-type receptacles shall not be used as a requirement that all cord-and-plug-connected equipment be of the grounded type.

FPN: See 250.114 for types of cord-and-plug-connected equipment to be grounded.

**(F) Noninterchangeable Types.** Receptacles connected to circuits that have different voltages, frequencies, or types of current (ac or dc) on the same premises shall be of such design that the attachment plugs used on these circuits are not interchangeable.

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***(G) Installation Heights.***

***[For DSA/AC with exceptions, 1, 2, 3 and 4].*** *Where access for persons with disabilities is required by Article 89.7 the center of electrical receptacle outlets on branch circuits of 30 amperes or less shall be installed not more than 48 inches nor less than 15 inches above the floor or working platform.*

*Exception No. 1: Receptacle outlets installed as part of permanently installed baseboard heaters are exempt.*

*Exception No. 2: Required receptacle outlets shall be permitted in floors when adjacent to sliding panels or walls.*

*Exception No. 3: Baseboard electrical outlets used in relocatable partitions, window walls, or other electrical convenience floor outlets are not subject to the minimum height requirements.*

*Exception No. 4: This section shall not apply to existing buildings when the enforcing agency determines that compliance with these standards would create an unreasonable hardship.*

**406.4 Receptacle Mounting.** Receptacles shall be mounted in boxes or assemblies designed for the purpose, and such boxes or assemblies shall be securely fastened in place.

**(A) Boxes That Are Set Back.** Receptacles mounted in boxes that are set back of the wall surface, as permitted in 370.20, shall be installed so that the mounting yoke or strap of the receptacle is held rigidly at the surface of the wall.

**(B) Boxes That Are Flush.** Receptacles mounted in boxes that are flush with the wall surface or project therefrom shall be installed so that the mounting yoke or strap of the receptacle is held rigidly against the box or raised box cover.

**(C) Receptacles Mounted on Covers.** Receptacles mounted to and supported by a cover shall be held rigidly against the cover by more than one screw or shall be a device assembly or box cover listed and identified for securing by a single screw.

**(D) Position of Receptacle Faces.** After installation, receptacle faces shall be flush with or project from faceplates of insulating material and shall project a minimum of 0.4 mm (0.015 in.) from metal faceplates.

**(E) Receptacles in Countertops and Similar Work Surfaces in Dwelling Units.** Receptacles shall not be installed in a face-up position in countertops or similar work surfaces.

**(F) Exposed Terminals.** Receptacles shall be enclosed so that live wiring terminals are not exposed to contact.

**406.5 Receptacle Faceplates (Cover Plates).** Receptacle faceplates shall be installed so as to completely cover the opening and seat against the mounting surface.

**(A)** Metal faceplates shall be of ferrous metal not less than 0.76 mm (0.030 in.) in thickness or of nonferrous metal not less than 1.02 mm (0.040 in.) in thickness.

**(B)** Metal faceplates shall be grounded.

**(C)** Faceplates of insulating material shall be noncombustible and not less than 2.54 mm (0.010 in.) in thickness but shall be permitted to be less than 2.54 mm (0.010 in.) in thickness if formed or reinforced to provide adequate mechanical strength.

**406.6 Attachment Plugs.** All attachment plugs and cord connectors shall be listed for the purpose and marked with the manufacturer's name or identification and voltage and ampere ratings.

**(A)** Attachment plugs and cord connectors shall be constructed so that there are no exposed current-carrying parts except the prongs, blades, or pins. The cover for wire terminations shall be a part that is essential for the operation of an attachment plug or connector (dead-front construction).

**(B)** Attachment plugs shall be installed so that their prongs, blades, or pins are not energized unless inserted into an energized receptacle. No receptacle shall be installed so as to require an energized attachment plug as its source of supply.

**(C) Attachment Plug Ejector Mechanisms.** Attachment plug ejector mechanisms shall not adversely affect engagement of the blades of the attachment plug with the contacts of the receptacle.

**406.7 Noninterchangeability.** Receptacles, cord connectors, and attachment plugs shall be constructed so that receptacle or cord connectors do not accept an attachment plug with a different voltage or current rating from that for which the device is intended. However, a 20-ampere T-slot receptacle or cord connector shall be permitted to accept a 15-ampere attachment plug of the same voltage rating. Non–grounding-type receptacles and connectors shall not accept grounding-type attachment plugs.

**406.8 Receptacles in Damp or Wet Locations.**

**(A) Damp Locations.** A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle is covered (attachment plug cap not inserted and receptacle covers closed).

An installation suitable for wet locations shall also be considered suitable for damp locations.

A receptacle shall be considered to be in a location protected from the weather where located under roofed open porches, canopies, marquees, and the like, and will not be subjected to a beating rain or water runoff.

**(B) Wet Locations.**

**(1) 15- and 20-Ampere Outdoor Receptacles.** 15- and 20-ampere, 125- and 250-volt receptacles installed outdoors in a wet location shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted.

**(2) Other Receptacles.** All other receptacles installed in a wet location shall comply with (a) or (b):

(a) A receptacle installed in a wet location where the product intended to be plugged into it is not attended while in use (e.g., sprinkler system controller, landscape lighting, holiday lights, and so forth) shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed.

(b) A receptacle installed in a wet location where the product intended to be plugged into it will be attended while in use (e.g., portable tools, and so forth) shall have an enclosure that is weatherproof when the attachment plug is removed.

**(C) Bathtub and Shower Space.** A receptacle shall not be installed within a bathtub or shower space.

C A C A *(1) [For OSHPD 1, 2, & 4] Receptacles shall not be installed within shower rooms or stalls or be accessible from within these areas. Receptacles shall not be installed within 5 feet (1.52 m) of the perimeter of bathtubs.*

**(D) Protection for Floor Receptacles.** Standpipes of floor receptacles shall allow floor-cleaning equipment to be operated without damage to receptacles.

**(E) Flush Mounting with Faceplate.** The enclosure for a receptacle installed in an outlet box flush-mounted on a wall surface shall be made weatherproof by means of a weatherproof faceplate assembly that provides a watertight connection between the plate and the wall surface.

**406.9 Grounding-Type Receptacles, Adapters, Cord Connectors, and Attachment Plugs.**

**(A) Grounding Poles.** Grounding-type receptacles, cord connectors, and attachment plugs shall be provided with one fixed grounding pole in addition to the circuit poles. The grounding contacting pole of grounding-type plug-in ground-fault circuit interrupters shall be permitted to be of the movable, self-restoring type on circuits operating at not over 150 volts between any two conductors or any conductor and ground.

CACACA *(7) [For OSHPD 1, 2, & 4] All automatic transfer switches in general acute care hospitals and correctional treatment centers providing optional services shall have provisions for electrically by-passing and isolating the transfer switch. The by-pass switch shall be capable of by-passing loads to the emergency source or normal source if the selected by-pass source voltage is available.*

**(C) Wiring Requirements.**

**(1) Separation from Other Circuits.** The life safety branch and critical branch of the emergency system shall be kept entirely independent of all other wiring and equipment and shall not enter the same raceways, boxes, or cabinets with each other or other wiring.

Wiring of the life safety branch and the critical branch shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits not part of the branch where such wiring is as follows:

(1) In transfer equipment enclosures, or

(2) In exit or emergency luminaires (lighting fixtures) supplied from two sources, or

(3) In a common junction box attached to exit or emergency luminaires (lighting fixtures) supplied from two sources, or

(4) For two or more emergency circuits supplied from the same branch

The wiring of the equipment system shall be permitted to occupy the same raceways, boxes, or cabinets of other circuits that are not part of the emergency system.

**(2) Isolated Power Systems.** Where isolated power systems are installed in any of the areas in 517.33(A)(1) and (A)(2), each system shall be supplied by an individual circuit serving no other load.

**(3) Mechanical Protection of the Emergency System.** The wiring of the emergency system of a hospital shall be mechanically protected by installation in nonflexible metal raceways, or shall be wired with Type MI cable.

*Exception No. 1: Flexible power cords of appliances, or other utilization equipment, connected to the emergency system shall not be required to be enclosed in raceways.*

*Exception No. 2: Secondary circuits of transformer-powered communications or signaling systems shall not be required to be enclosed in raceways unless otherwise specified by Chapters 7 or 8.*

*Exception No. 3: Schedule 80 rigid nonmetallic conduit shall be permitted if the branch circuits do not serve patient care areas and it is not prohibited elsewhere in this Code.*

*Exception No. 4: Where encased in not less than 50 mm (2 in.) of concrete, Schedule 40 rigid nonmetallic conduit or electrical nonmetallic tubing shall be permitted if the branch circuits do not serve patient care areas.*

*Exception No. 5: Flexible metal raceways and cable assemblies shall be permitted to be used in listed prefabricated medical headwalls, listed office furnishings, or where necessary for flexible connection to equipment.*

FPN: See 517.13 for additional grounding requirements in patient care areas.

**(D) Capacity of Systems.** The essential electrical system shall have adequate capacity to meet the demand for the operation of all functions and equipment to be served by each system and branch.

Feeders shall be sized in accordance with Articles 215 and 220. The generator set(s) shall have sufficient capacity and proper rating to meet the demand produced by the load of the essential electrical system(s) at any given time.

Demand calculations for sizing of the generator set(s) shall be based on the following:

(1) Prudent demand factors and historical data, or

(2) Connected load, or

(3) Feeder calculation procedures described in Article 220, or

(4) Any combination of the above

The sizing requirements in 700.5 and 701.6 shall not apply to hospital generator set(s).

CACAC ***(D.1)*** *[For OSHPD 1, 2, 3, & 4]* ***Capacity of Systems.*** *The essential electrical system shall have adequate capacity to meet the demand for the operation of all functions and equipment to be served by each system and branch.*

CACA **(E) Receptacle Identification.** The cover plates for the electrical receptacles *[For OSHPD 1&4] and light switches* or the electrical receptacles *[For OSHPD 1&4] and light switches* themselves supplied from the emergency system shall have a distinctive color or marking so as to be readily identifiable. [NFPA 99, 3.4.2.2.4(b)2]

**517.31 Emergency System.** Those functions of patient care depending on lighting or appliances that are connected to the emergency system shall be divided into two mandatory branches: the life safety branch and the critical branch, described in 517.32 and 517.33.

The branches of the emergency system shall be installed and connected to the alternate power source so that all functions specified herein for the emergency system shall be automatically restored to operation within 10 seconds after interruption of the normal source. [NFPA 99, 3.4.2.2.2(a), 3.5.2.2.2]

**517.32 Life Safety Branch.** No function other than those listed in 517.32(A) through (G) shall be connected to the

life safety branch. The life safety branch of the emergency system shall supply power for the following lighting, receptacles, and equipment.

**(A) Illumination of Means of Egress.** Illumination of means of egress, such as lighting required for corridors, passageways, stairways, and landings at exit doors, and all necessary ways of approach to exits. Switching arrangements to transfer patient corridor lighting in hospitals from general illumination circuits to night illumination circuits shall be permitted, provided only one of two circuits can be selected and both circuits cannot be extinguished at the same time.

FPN: See NFPA *101*-2000, *Life Safety Code*, 5.8 and 5.9.

**(B) Exit Signs.** Exit signs and exit directional signs.

FPN: See NFPA *101*-2000, *Life Safety Code*, 5.10.

**(C) Alarm and Alerting Systems.** Alarm and alerting systems including the following:

(1) Fire alarms

FPN: See NFPA *101*-2000, *Life Safety Code*, 7.6 and 12.3.4.

(2) Alarms required for systems used for the piping of nonflammable medical gases

FPN: See NFPA 99-1999, *Standard for Health Care Facilities*, 12.3.4.1.

**(D) Communications Systems.** Hospital communications systems, where used for issuing instructions during emergency conditions.

**(E) Generator Set Location.** Task illumination battery charger for emergency battery-powered lighting unit(s) and selected receptacles at the generator set location.

**(F) Elevators.** Elevator cab lighting, control, communications, and signal systems.

**(G) Automatic Doors.** Automatically operated doors used for building egress. [NFPA 99, 3.4.2.2.2(b)]

**517.33 Critical Branch.**

**(A) Task Illumination and Selected Receptacles.** The critical branch of the emergency system shall supply power for task illumination, fixed equipment, selected receptacles, and special power circuits serving the following areas and functions related to patient care:

(1) Critical care areas that utilize anesthetizing gases — task illumination, selected receptacles, and fixed equipment

(2) The isolated power systems in special environments

(3) Patient care areas — task illumination and selected receptacles in the following:

a. Infant nurseries

b. Medication preparation areas

c. Pharmacy dispensing areas

d. Selected acute nursing areas

e. Psychiatric bed areas (omit receptacles)

f. Ward treatment rooms

g. Nurses' stations (unless adequately lighted by corridor luminaires)

(4) Additional specialized patient care task illumination and receptacles, where needed

(5) Nurse call systems

(6) Blood, bone, and tissue banks

(7) Telephone equipment rooms and closets

(8) Task illumination, selected receptacles, and selected power circuits for the following:

a. General care beds (at least one duplex receptacle per patient bedroom)

b. Angiographic labs

c. Cardiac catheterization labs

d. Coronary care units

e. Hemodialysis rooms or areas

f. Emergency room treatment areas (selected)

g. Human physiology labs

h. Intensive care units

i. Postoperative recovery rooms (selected)

C A C A C A C A *[Subsections j through n for OSHPD 1]*

*j. Lithotripsy treatment rooms*

*k. Laser operating rooms*

*l. Electric clocks as required by Part 2, Title 24, C.C.R.*

*m. Food preparation areas, central supply, and utility rooms*

*n. Electrical and mechanical rooms*

(9) Additional task illumination, receptacles, and selected power circuits needed for effective hospital operation. Single-phase fractional horsepower motors shall be permitted to be connected to the critical branch. [NFPA 99, 3.4.2.2.2(c)]

C A C A C A C *(10) **[For OSHPD 1, 2, 3, & 4]** Sensor-operated fixtures when used to comply with Table 4-2, California Plumbing Code.*

*(11) **[For OSHPD 1 & 4]** Alarm systems for monitoring negative pressure isolation rooms and positive pressure isolation rooms.*

**(B) Subdivision of the Critical Branch.** It shall be permitted to subdivide the critical branch into two or more branches.

FPN: It is important to analyze the consequences of supplying an area with only critical care branch power when failure occurs between the area and the transfer switch. Some proportion of normal and critical power or critical power from separate transfer switches may be appropriate.

**517.34 Equipment System Connection to Alternate Power Source.** The equipment system shall be installed and connected to the alternate power source such that the equipment described in 517.34(A) is automatically restored

# HISTORY NOTE APPENDIX
## California Electrical Code
## California Code of Regulations, Title 24, Part 3

*Notes*
For prior history, see the History Note Appendix to the *Cailfornia Electrical Code,* 2001 Triennial Edition effective November 1, 2002

1. (SFM 01/02) Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

2. (OSHPD 05/02) Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

3. (HCD 01/02) Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

4. (DSA AC 02/02) Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

5. (DSA SS 02/02) Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

6. (BSC 01/02) Adoption/Approval of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) with necessary California amendments. Adoption of the 2002 edition of the *National Electric Code* of the National Fire Protection Association (CCR, Title 24, Part 3) on behalf of the Department of Health Services (DHS) for commissaries and public swimming pools. Approved by the Building Standards Commission on May 14, 2003 and effective on August 1, 2005.

7. February 2, 2005 errata, cover page and page 70-711: correct the effective date to August 1, 2005.

8. (OSHPD 03/04) Amend Articles 89, Sub-articles 089.7 (A) & (B) and 517, Sub-article 577.33 filed May 23, 2006; effective 180 days after Publication. Approved by the California Building Standards Commission on May 17, 2006.

9. HCD 04/04 Repeal Chapter 4, Article 404.8(C) and Amend Article 406.3 filed May 23, 2006; effective 180 days after Publication. Approved by the California Building Standards Commission on May 17, 2006.

10. (DSA/AC 05/04) Change without regulatory effect to Article 406, to carry forward exceptions for buildings regulated under their authority, filed with Secretary of State on June 28, 2006, effective 180 days thereafter.

11. September 1, 2006 errata, page 70-91, §250.52 (A)(5)(b): Change "(3/8 in.)" to "(5/8 in.)" in two places to correlate with the 2002 National Electrical Code.